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Dear Dr. Kristensen:

Thank you for sending me your last reprint on mutative fermentation (No. 8). It is important to emphasize the distinction, as so few bacteriologists do, between slow and mutative utilization of sugars.

In my own experience, I had been struck with the frequency of mutable maltose-negatives among ~~Rx~~ E. coli O55 types. Some strains were so revertible that they would be classified as ++ in broth fermentation tests, so I would suggest that a more exact classification can be made on agar. We have found eosin-methylene-blue agar to be the most distinctive medium for reactions that can be classified within 48 hours.

I was especially interested in your remark about O55 B6 (1064) and its oscillation from Lac-Mal- to Lac-Mal+. My wife (E.M.Lederberg) has been studying a remarkable relationship between maltose fermentation and resistance to a phage (lambda-2) which gives a repeated mutational oscillation



Further genetic analysis has confirmed that these effects are manifestations of a single genetic locus, but we have no clue as to the physiological connection, if any. It would be interesting to see if anything could be done with the Lac-Mal situation. Indeed, we have been greatly interested to look for sexually fertile strains among the O55 and O111 types of E. coli, and our success so far has been limited (with one or two promising exceptions). It would be a great favor then if we could obtain from you, or from Dr. Orskov, the strains mentioned in your note: O55B5 : 972, 1064, Stoke P, and O111B4 Aberdeen 4, JonnaP and Stoke W. The 1064 strain would be of particular interest for the reasons mentioned above. ~~Amusingly~~ For the rest, we are anxious to secure as many distinct antigenic or cultural varieties of the O55 and O111 types as possible in order to screen them for fertility, and then to use them for further immunogenetic study. If still others are available, I would impose upon your generosity, and that of your colleagues, to ask for them ~~xxx~~ as well.

Yours sincerely,

Joshua Lederberg
Professor of Genetics